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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/973,193	10/10/2001	Joachim Kohler	33766W046	4504

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EXAMINER

KALAFUT, STEPHEN J

ART UNIT	PAPER NUMBER
1745	

DATE MAILED: 05/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

**Application No.**

09/973,193

**Applicant(s)**

KOHLER ET AL.

**Examiner**

Stephen J. Kalafut

**Art Unit**

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>9/24/02</u> . | 6) <input type="checkbox"/> Other: ____  |

Claims 1-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The phrase "contacting with the respective surfaces of the polymer electrolyte membrane successively" is incomplete, because what is being contacted with the membrane is not recited. Claims 1-10 and 13-23 depend from claim 1 and would thus likewise be indefinite. The term "elevated temperature" in claim 10 would have indefinite scope. Claim 11 depends from itself and would thus be incomplete. Claim 12 depends from claim 11, and would likewise be indefinite.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 22 and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by either Kawahara *et al.* (US 6,015,635) or Kawahara (EP 785,588).

These claims are in product-by-process format, and are examined for the characteristics of the product which would result from carrying out the processes of claim 1, from which these claims depend, rather than the process itself. The membrane electrode assembly of claim 22 would include a membrane, two catalyst layers on respective sides of the membrane, which each contain a catalyst and an ionomer conductive to protons, and two water-repellant gas distribution layers, each contacting a respective catalyst layer. Kawahara *et al.* disclose a membrane (21)

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which is conductive to protons (column 7, lines 36-40), catalysts layers (22, 23) on either side thereof, and gas diffusion layers (24, 25) in contact with the catalyst layers. The gas diffusion layers would be a type of gas distribution layer, and are disclosed as being water-repellent (column 8, lines 3-5). The catalyst layers each include catalyst particles (34) and a coating (38) of electrolyte material, which would be a proton-conductive ionomer. These components are assembled to form a complete fuel cell (28). Thus, these claims would be anticipated by Kawahara *et al.*, who disclose the characteristics of the product inherent thereto.

Kawahara discloses a membrane (12) which is conductive to protons (column 7, lines 16-31), catalysts layers (14) on either side thereof, and gas diffusion layers (16) in contact with the catalyst layers. The gas diffusion layers would be a type of gas distribution layer, and are disclosed as being water-repellent (column 8, lines 50-58). The catalyst layers each include catalyst particles and Naphion, which would be a proton-conductive ionomer, and initially a pore forming agent (column 6, line 48 through column 7, line 15). These components are assembled to form a complete fuel cell (15). Thus, these claims would be anticipated by Kawahara, who discloses the characteristics of the product inherent thereto.

Claim 2 is objected to because of the following informalities: The claim is grammatically awkward due to the phrase "further comprising wherein", in line 1 thereof. Moving "further comprising" to line 3, after the word "and" is suggested. Appropriate correction is required.

Claims 1-10 and 13-21 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action. Claims 1, 3-9

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and 13-21 are allowed. The process of making a membrane assembly, which comprises sequentially supporting one side of a membrane while an opposite side has a catalyst ink layer deposited thereon is not disclosed by the prior art cited either herein or by applicant.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Albertone *et al.* (US 6645336) disclose a lamination process in which a release layer is removed. Lott *et al.* (US 6,383,556) and Raistrick (US 4,876,115) disclose fuel cells with membrane electrode assemblies.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen J. Kalafut whose telephone number is 571-272-1286. The examiner can normally be reached on Mon-Fri 8:00 am-4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
STEPHEN KALAFUT  
PRIMARY EXAMINER  
GROUP 1700